Saskatchewan
Education Indicators Program

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Foreword

Recent demographic, social and economic developments lead us to ask how we are doing with respect to educational progress. This information is required for provincial reporting, to guide system improvement, to help in priority setting, and to meet increased demands for accountability. To these ends, monitoring and analyzing the effects of education reform over time will assist the general public and education policy-makers to understand the dimensions of a complex human service system and to identify the means of improving educational performance.

Saskatchewan Education Indicators Program: A Foundation Document **establishes a framework for indicator development and selection which is grounded in Saskatchewan's Goals of Education and the vision for education outlined within *Directions*. It supports the gathering of information on a regular basis and provides for continuous update of the vision and priorities for education in this province.**

Purpose

This document has four main purposes. It provides background on the development of the Saskatchewan Education Indicators Program, reviews the trends and issues influencing education reform and indicator development, clarifies the purposes and uses of indicators, and describes the program.

Introduction

Parents, teachers, administrators, and the public at large all want quality education for the children of Saskatchewan. They want a system that will serve the needs of all students and prepare them to take their place as responsible, contributing citizens.

Like many provinces in Canada, Saskatchewan is committed to comprehensive education reform. Over the past ten years, this reform movement has advanced at a steady pace with the support of all concerned. Saskatchewan educators take pride in the direction of reform in this province and consider their efforts to be at the leading edge of curriculum innovation and school improvement.

Over these years, Saskatchewan has exhibited success in implementing change. This has been due, in part, to the resources directed at the change effort. More importantly, however, such success may be attributed to the management of change through collaborative practices among the education stakeholders. The provincial system nurtures this collaboration which has evolved as a natural way of doing business in education. More recently, involvement in the consultative process has been widened to include other groups with direct interest in education such as business and industry.

As part of this collaborative practice in the province, a review process purposefully and systematically examined evaluation within the larger education reform movement. Evaluation from the outset was viewed as an important determinant in achieving educational effectiveness. It was deemed to be necessary in answering questions like: How well are we doing in implementing change? Are we providing the quality of education that residents of this province desire? Are we meeting the needs of students in this time of rapid change? Are the changes having the intended effects?

It is questions such as these that have led to the development of a provincial indicators system. This system will address the need for public accountability by responding to these questions and by providing a more comprehensive picture of education in this province. This will lead to more informed decision making at both the local and the provincial levels as needed improvements are identified and direction is provided as to how planned changes can be implemented.

Background

Over the past two years, Saskatchewan Education has been in the process of conceptualizing, researching and developing a provincial system of education indicators in consultation with the education partners. However, discussions about such a system have a longer history in the province.

Early in the 198Os, educators, like many other segments of society, began to consider the rapid pace of change and its effects. It was time for the education stakeholders to make significant reforms to the system to meet the emerging demands of a changing society. Those demands included a growing interdependence of the world's economies, improved communications, rapid technological change, rapidly increasing skill and education requirements, and changing economic and demographic circumstances of the province.

In November, 1981, a Minister's Advisory Committee on Curriculum and Instruction was established with membership from the major education partners in the province: parents; teachers; faculty members from the two universities; Department of Education staff; the Saskatchewan Teachers' Federation; the Saskatchewan School Trustees Association; and the League of Educational Administrators, Directors, and Superintendents. The Committee was given the mandate to assess the quality of education in the province and to establish directions for the future.

In its review of the education system, the Committee recognized from the outset that any changes recommended must be evaluated and monitored. This would provide evidence not only that the changes had taken place but also that they were having the intended effects on student learning and the learning environment.

As a result, among the recommendations contained in *Directions* (1984), the final report of the Minister's Advisory Committee on Curriculum and Instruction, was the concept of developing a provincial indicator system in the context of education reform. Recommendation #7 from the report stressed the importance of conducting a review of evaluation policy and procedures. One of the areas identified for review within this recommendation was the need for "indicators of the educational system's ongoing effectiveness" (p. 48).

Subsequent to the *Directions* report, an interagency committee was established specifically to review the provincial evaluation system. This committee reaffirmed the need for system monitoring. In its final report, entitled *Evaluation in Education (1989),* the Minister's Advisory Committee on Evaluation and Monitoring cited several reasons for developing mechanisms that would assess the effects of the changes in education. These include the following:

- Evaluation and monitoring activities are deemed essential to inform Saskatchewan Education about the effects the reforms are having on improving education in the province.

- Monitoring and evaluation activities will assist in further planning and policy development in an ongoing and systematic way at various levels of the system.

- Saskatchewan Education has a responsibility for assessing the overall effectiveness of the education system in the province in protecting the interests of the public.

Recommendation # *15* in *Evaluation in Education* states "that a framework of system program planning and effectiveness indicators be developed for education in Saskatchewan" (p. 20).

In order to act on this recommendation, the Minister of Education established the Education Indicators Advisory Committee in 1989. The committee's mandate was to assist the department in developing a program that would provide reliable information on key indicators of the system's effectiveness. The committee's progress report was submitted to the Deputy Minister of Education in February, 1992.

At the same time, a review of educational changes recommended by *Directions* has further emphasized the need for an indicator system. This review was conducted by a subcommittee of the Education and Program Policy Advisory Committee, starting in the fall of 1991 and reported in *Into the Classroom: A Review of Directions in Practice* (1992). It reaffirmed recommendations from the *Directions* report and reviewed progress made to date in implementing those changes. Renewed commitment to the *Directions* process resulted from that review. However, the subcommittee recommended that the *Directions* vision be expanded to take into account the following new circumstances and issues of the 1990s:

- Children at risk
- Equality of opportunity and benefit
- Technology in education
- Public involvement
- Accountability
- Financial restraint

The report also states that "...efforts to review *Directions* (were) hampered by a lack of systematic and comprehensive information about the results of work to date, and about the implementation process itself. Therefore, the subcommittee strongly recommends that a monitoring system be established to gather information, and that an ongoing planning cycle be developed to continuously update the vision and priorities of education" (p.2).

These events highlight the immediacy of the work of the Education Indicators Advisory Committee.

In addition, the Education Indicators Advisory Committee has been influenced by a growing awareness of the unique educational needs of an expanding Indian and Métis Community in Saskatchewan. This awareness includes a sensitivity to the underlying philosophical beliefs of Indian and Métis peoples, a recognition of the need for a holistic

approach to teaching and learning, and a recognition that the well-being of the family and community are an integral part of the teaching and learning process. Efforts are, therefore, being made to develop indicators which reflect issues and concerns of groups that may not have been successful in the education system in the past.

Findings of the Indian and Métis Advisory Committee, reported in *Partners in Action* (1991), suggest that "timely and reliable data in a variety of areas remain a critical need for solid planning to occur" (p.17).

Contextual Framework

In the search for quality and excellence in the provision of educational services, there is a need to determine the progress and effectiveness of the education system in attaining its goals. What constitutes an indicator of progress and effectiveness is a current topic of discussion.

There is a heightened awareness among governments, the public, and business groups that education is the foundation for the cultural, social and economic growth of a nation. Education issues are being placed high on the public's agenda. Now, more than ever before, there is a need to know how we are doing.

As a preliminary step in the design of a Saskatchewan Education Indicators Program it was necessary to review work that has been done in other jurisdictions. What follows is a summary of international, national, and provincial trends in education indicator development.

International Perspective

There is a growing body of evidence internationally that levels of student learning are linked to countries' economic health. In the Project Overview of the Third International Mathematics and Science Study (1991), the reviewers agree that the interest shown by governments around the world in assessing what is learned in school reflects a global recognition that scientific literacy and economic productivity are inextricably linked. They acknowledge that "poor school achievement outcomes are commonly found in countries that have poor economic performance" (p. 3). A concerted effort is being made by the international education community to evaluate trends over time and monitor the effects of changes in resource allocations to schools. Less developed nations are being encouraged to undertake national assessments in order to monitor changes in school quality. The argument for international comparisons of education and of education outcomes is that they can contribute to a better understanding of the relative influence of a number of significant variables on the teaching and learning processes.

A number of activities that are international in scope have been undertaken by various

organizations. One of the most significant of these is the work conducted by the Organization for Economic Cooperation and Development (OECD). There is general acceptance among OECD member countries that there are a number of significant gaps in the information collected about education. There is a perceived need for stronger information systems about the career paths of students as they move through the education system and into adult life, particularly into the labour market (Suter, 1987; OECD Report, 1988).

As a result, OECD member countries have developed a limited set of indicators to address issues, study changes, and identify differences within national systems. Efforts are being made to overcome technical difficulties in developing and interpreting a reliable set of indicators which reflects the differences in content and structure of education among countries.

Another recent international initiative is The International Assessment of Educational Progress (IAEP), conducted in 1990-91 in 20 participating countries and coordinated by Educational Testing Services. Countries and provinces participated in the study for varying reasons. These reasons include the following:

- to compare results with neighbours or competitors;
- to learn more about the educational policies and practices of other countries which seem to influence achievement results;
- to establish baseline data within countries to assess future progress; and
- to identify what 9- and 13-year-old students know and can do in mathematics and science.

The IAEP project assembled items that focus on the common elements of each curriculum and collected contextual information for interpreting the results. Data concerned with students' home background, classroom experiences, and characteristics of the schools and school systems were collected along with data on student achievement.

Other comparisons of education systems are being made through the Third International Study of Mathematics and Science (TIMSS) sponsored by the International Association for the Evaluation of Educational Achievement (now simply, IEA). This study is the third in a series of international comparisons by IEA. Over 40 countries from all parts of the world will take part, with Phase I scheduled for the 1993-94 school year in the northern hemisphere and Phase II in 1997-98.

In North America, questions have been raised about the competitiveness and quality of American schools. Darling-Hammond and Ascher (1991) suggest that while accountability has always been a basic concept in public education, ideas about how to accomplish it have changed. They go on to suggest that there is an urgent need to improve schools, and this need serves as a powerful incentive for the adoption of new accountability systems. Both financial need and efficiency have been driving forces

behind accountability systems.

Murnane and Pauly (1988) have identified two U.S. federal initiatives that responded to the demand for better knowledge about student achievement. The first was the Equality of Educational Opportunity Survey (EEOS) in the 1960s with its follow-up Coleman Report (1966) which provided information on achievement test scores of 645,000 school children. The Coleman Report itself was to influence thinking about education for many years. It essentially called into question the impact schools had on student achievement. The debate around the impact of schooling within the socio-economic context continues in educational circles to this day.

The second initiative was the creation of the National Assessment of Educational Progress (NAEP) in 1969. This is an effort to collect comprehensive and dependable achievement data on a national level. It involves the periodic assessment of achievement in reading, mathematics, and science of random samples of 9, 13, and 17-year-old students.

In addition, the following series of commissioned reports released in the United States in 1983 influenced events in North America and throughout the world with regard to the current emphasis on accountability and reform in education:

- National Commission on Excellence in Education. *A Nation at Risk: The imperative for Educational Reform*
- Task Force on Education for Economic Growth. *Action for Excellence*
- Task Force on Federal Elementary and Secondary Educational Policy. *Making the Grade*
- Ernest L. Boyer. *High School. A Report on Secondary Education in America*
- National Science Foundation. *Educating Americans for the 21st Century*

These reports blamed the schools for the country's economic problems and went on to propose a series of reforms, including a national test or series of tests. During the Bush administration, this proposal gained support and the recent report, *America 2000 an Education Strategy* (1991), laid the groundwork for a voluntary national testing system as part of the overall strategy to move the nation towards achievement of the six major national goals of education outlined by Bush and the state governors.

A critique of national testing was presented by Kellaghan and Madaus (1991). Consideration was given to the work being done by OECD member countries, and within the context of that experience, the authors examined such issues as: what is the purpose of the testing?; will the testing be voluntary?; at what grade levels?; in what subject areas?; by what testing method?; under whose control?; and with what impact on curriculum? These are all thorny questions, and they wonder if American reformers will be satisfied if educational quality is equated with test measurements. They conclude by saying that:

> we learn from Europe that whoever controls the external examination system will control what goes on in schools. To move from a tradition of local control to one

of federal control - certainly a possibility in the light of current proposals - is a major step which many Americans will wish to ponder seriously. (p. 92)

National Perspective

The growing pressure for more information about how well our students are doing is also evident in Canada. A comprehensive examination of the way primary and secondary schools and the training system in Canada prepare young people for employment was conducted by the Economic Council of Canada. Release of the study paper, *A Lot to Learn* (1992), called for a more coherent education system linking employers, schools, and governments to boost standards and to produce graduates better equipped for a more competitive work world. The Government of Canada released a discussion paper, entitled *Learning Well...Living Well*, on education. The Steering Group on Prosperity, appointed by the federal government, has released *Inventing our Future: An Action Plan For Canada's Prosperity*. Education is viewed as one of the key elements of Canada's prosperity.

Because education is a provincial and territorial responsibility, individual provinces and territories are responding to the current emphasis for accountability and reform in education in their own ways. For some, this means expanding their own testing and assessment programs. For others, it means establishing new systems for examining and charting student progress. One trend that is appearing in Canada is a movement towards more authentic provincial assessment and testing programs through incorporation of a variety of assessment strategies, including performance measurement. Greater efforts are also being made in some provinces, such as British Columbia, Alberta and Quebec, to report to students, parents and the general public through the release of publications on key indicators of quality education.

A cross-Canada survey of educational indicator development, conducted in January 1993, provides some further information on provincial initiatives. A number of provinces are working on the development of conceptual frameworks. British Columbia, for example, has been involved in indicator development for a number of years and is currently working on a conceptual framework for development and reporting at the provincial level. Newfoundland, as well, is in the process of developing a framework for educational evaluation with provision for the consideration for contextual and process information needed to understand linkages with output data. Three provinces are supporting indicator development through local programs. These include Alberta, where the approach has been to support indicator development at the school division level with ten projects now underway; Nova Scotia, where consideration is being given to developing such a program on a regional basis; and British Columbia where resources are made available to school districts for indicator development, both for planning and accountability purposes, and to provide content for the production of provincially mandated school district annual reports.

Several provinces are involved in large-scale assessment programs. In Manitoba, an assessment program collects information on students and teachers to support program

improvements. This is not considered to be an indicator program by Manitoba Education for two reasons. First, important elements such as context and process data are not included. Second, data are not collected in an integrated way to assess the linkages between student and teacher information. In Ontario, work is underway in establishing benchmark standards of achievement in mathematics, intended to be used to identify needed improvements in the program. In New Brunswick, work is proceeding on an overall framework for education indicators. There is a provincial testing program which also takes into account the importance of contextual and process information in interpreting test results.

In addition to these programs, another trend has been provincial involvement in international studies related to student achievement. Nine out of ten provinces (including Saskatchewan) participated in the International Assessment of Educational Progress (IAEP) in Mathematics and Science during the 1990-91 school year. In addition, Canadian representation in the Third International Mathematics and Science Study (TIMSS) has been recognized with the establishment of the IEA International Coordinating Centre in the Department of Mathematics and Science Education at the University of British Columbia.

As part of the accountability and reform movement, we are witnessing a marked increase in the use of tests and testing in Canada. In 1993, the Council of Ministers of Education, Canada (CMEC) will assess the literacy and numeracy achievements of 13-year-olds and 16-year-olds across the country through the School Achievement Indicators Project (SAIP). The School Achievement Indicators Project will provide a Canadian information base that will assist provincial and territorial ministries to assess the performance of their school programs over time and in relation to Canada-wide standards. At this time, Saskatchewan has chosen to take a monitoring role with regard to SAIP. It was felt that Saskatchewan should concentrate its efforts on building a program that is based on the province's vision for education, one that will demonstrate accountability to the public at both the provincial and local levels.

Saskatchewan Perspective

It is obvious that consensus is not easily reached in the debate about what constitutes a quality education or an effective education system. The national and international forums for such discussion bear witness to this. Educators in Saskatchewan, as well, are and have been, for a number of years, concerned about accountability, evaluation of student performance, the quality of schooling, and support for the public education system (Cooper, 1988; Renihan & Renihan, 1991; Renihan, 1992; STF Discussion Paper, 1992).

In addition to educators, we are witnessing a growing interest on the part of the Saskatchewan business community to be more active in the education system. This is evidenced by the release of issue papers such as those of the Saskatchewan Chamber of Commerce and the Canadian Federation of Independent Business; their membership on Minister's Advisory Committees; and their partnerships with schools in providing learningopportunities for students.

A Saskatchewan perspective is evolving which includes a sensitivity to issues such as race, poverty and gender equity with implications for education. In some respects, this approach is breaking new ground as research on the selection and development of indicators of success for minority populations is limited.

This perspective focuses on the need for developing a set of indicators tied to the vision for education in Saskatchewan. This vision recognizes the inherent worth and value of each individual; underscores the need to develop the potential of each person to the fullest extent; and seeks to enhance the ability of each individual to cope effectively in a changing physical, economic, and social environment. The set of indicators should also support school improvement efforts and monitor the impact of important Saskatchewan Education policy initiatives such as education equity for Indian and Métis students, distance education, alternative education, and gender equity.

Through the recent review of *Directions*, the Saskatchewan education community has expanded the *Directions* vision to take into account the circumstances of the 1990s. A Minister's Advisory Committee on Education Indicators has, therefore, identified system goals of relevance, accessibility, equity and accountability in addition to those student goals identified in *Directions* and the need for effectiveness indicators related to those goals.

Developments in Education in Saskatchewan

As stated earlier, education in this province has undergone a major review in recent years beginning with the *Directions* process. We are witnessing a paradigm shift in education in this province. This shift is described in *The Adaptive Dimension of Core Curriculum* (1992) as follows:

> The shift toward decentralized decision making and the provision of greater autonomy at the school level is part of an extensive paradigm shift in education today. The shift from the traditional paradigm to the evolving paradigm has brought about significant changes in educational theory and practices. (p. 4)

The figure which follows illustrates some of these shifting emphases.

Figure 1: Paradigm Shift in Education

Traditional Paradigm		Evolving Paradigm
	Curriculum	
• major focus on content		• content and process balance
• discrete disciplines		• integrated disciplines
• content acquisition		• learning to learn
• lock step progress		• continuous progress
	Instruction	
• teacher-centred classroom		• child-centred classroom
• single assigned textbook		• resource-based learning
• single instructional approach		• multiple approaches to instruction
• passive learning		• active learning
	Environment	
• competitive		• cooperative
• system level management		• school-site management
• supervision of learners		• empowerment of learners
• hierarchical structures		• professional/collegial structures

In summary, this shift in educational thought is a system response to changing conditions both provincially and nationally, the growing importance of knowledge to an economy, an accelerating rate of change, creation of a global economy, and an increasingly diverse classroom.

This shift in educational thought has had major implications for the delivery of education in Saskatchewan as evidenced by the number of initiatives that have been undertaken. Recommendations within *Directions* (1984) and adoption of the Goals of Education provided the initial framework for design and implementation of these initiatives. Although recognizing the need for a paradigm shift in educational thought, Saskatchewan Education advocates an approach which incorporates elements of the traditional and evolving paradigms where appropriate.

Saskatchewan Initiatives

The following initiatives have been undertaken to meet the wide range of education needs among Saskatchewan students:

- development, implementation and evaluation of Core Curriculum at all grade levels, including integration of the Common Essential Learnings and the Adaptive Dimension into all subject areas;
- development of the document, *Instructional Approaches: A Framework for Professional Practice,* and its distribution to all Saskatchewan teachers, as well as the delivery of related inservice;
- development of the document, *Student Evaluation: A Teacher Handbook,* along with the delivery of related leadership training to provide teachers with student evaluation strategies consistent with the philosophy of new curricula;
- development and implementation of a Curriculum Evaluation Program and a Learning Assessment Program designed to systematically support ongoing curriculum renewal;
- development and implementation of the *Indian and Métis Education Policy from Kindergarten to Grade* 12 and *Partners in Action: Action Plan of the Indian and Métis Education Advisory Committee* to promote increased participation and retention of Indian and Métis students within provincial schools;
- development and implementation of a policy and programs intended to promote increased participation and retention of school leavers (federal retention initiatives);
- continued implementation of the Special Education Policy to support provision of appropriate education services for children with special needs;
- development of the *Gender Equity Policy and Guidelines for Implementation* to promote equity among male and female students within all major aspects of the school system: curriculum, resource materials, instruction and assessment practices, school environment, student development and community relations;
- implementation of the Saskatchewan School Improvement Program to promote planned change and improvements in education at the local level;
- development of policies supporting minority and heritage languages;
- development of policies supporting student development (guidance and counselling); and
- development and implementation of the *Saskatchewan School-Based Program Evaluation Resource Book* and delivery of related inservice to support school divisions in the evaluation of programs at the local level.

Theoretical Framework

A review of the literature suggests growing pressure for better information on how well students are performing locally, nationally, and internationally (Keeves, 1988; Odden, 1990; Smith, 1988). It is a phenomenon which is international in scope and which is part of a larger education reform movement. It has evolved with a shift from a narrow focus on financial accountability in the early 1960s to an expanded student-outcome concept of accountability beginning in the late 1980s.

Introducing Indicators

Educational indicators originated from the development of economic and social indicators. They serve a similar purpose to indicators that are used to monitor the economy, the criminal justice system or other social systems. "An educational indicator is a statistic about the education system that reveals something about its performance or health and can be used to inform educational decision-making" (Oakes, 1988, p. 1). Smith (1988) suggests that educational indicators either assess or relate to a desired outcome of the education system or describe a fundamental aspect of that system. Common examples of educational indicators include literacy, retention, and completion rates.

Oakes (1986) warns that not all statistics are indicators. To provide information about the health of the system, a statistic must have a reference point against which it can be judged. Usually the reference point is some socially agreed-upon standard, a past reading or a comparison across schools, regions, or nations. The reference point may change depending on who is using it as well as when. In addition to points of reference, Smith (1988) cautions that indicators assume some common understandings, like the concept of literacy or the dropout rate, whether or not such assumptions are justified. Such concepts must be clearly defined. For example, one study might use reading levels found in most daily newspapers to define what is meant by literacy. Another study might use a reading level of grade 10 as a part of the definition for literacy. The two studies would generate results that would be significantly different, and comparisons between the results would be invalid.

The key elements of an ideal educational indicator were identified by Oakes (1986). Indicators should provide at least one of the following types of information:

- information that describes the system's performance in achieving desired educational conditions and results. Examples include decreased dropout rates and more positive attitudes to school.
- information about features of the system known to be linked with desired conditions and outcomes. Examples include resources such as instructional time that research has identified as being related to student achievement.
- information that describes fundamental features of the system. Examples include financial resources available, teachers' workload, and curriculum offerings.

- information that is relevant to educational policy. Examples include policies such as requirements for teacher certification.

As well as these criteria, according to Oakes (1986), indicators should have certain technical characteristics. They should measure aspects of schooling that are found across diverse school types and locales. They should measure enduring features of the system so that trends can be established over time. Indicator statistics must be valid and reliable; that is, they should measure what they are intended to measure, and they should do so consistently over time. Finally, indicators must meet practical criteria. They must be feasible in terms of the time, cost and expertise required to collect the data, and they must be readily understood by a broad audience of educators, policy makers, and the public.

Indicator Systems

"Whether indicators are relatively simple, single statistics or more sophisticated composite indices, rarely can a single indicator alone provide adequate information about phenomena as complex as education. Rather, we must attempt to construct a system of indicators to generate more comprehensive and complete information" (Oakes, 1988, p. 11).

Several authors have noted that, ideally, a system of indicators measures distinct components of the system and also provides information about how these components work together to produce the overall effect (Shavelson, McDonnell & Oakes, 1991; Delfau, 1990; Odden, 1990).

Oakes (1988) further recognizes that, to provide this overall picture, the indicators selected should be logically or empirically linked. The linkages should proceed from a model or framework that describes how the educational system works. The framework permits the assessment of an indicator's relevance and provides the basis on which an indicator system can be interpreted. In addition, by drawing on the framework, combinations of indicators can be used to examine current and future conditions and suggest changes that would lead to improvement.

However, no single model of the educational process has been universally accepted. This remains a dilemma in the selection and construction of indicators. Yet, as Oakes (1986) points out, we do have some widely shared views about learning outcomes and about a number of schooling conditions we want for their own sake.

In this light, then, information from indicators can assist in educational policy and improvement efforts. Indicators can help educators and administrators plan programs, implement needed instructional strategies, allocate resources, and set policies. They can provide parents and the public at large with new understandings about the education system. They can assist policy makers at the provincial level to determine courses of action in curriculum, instruction, evaluation, finance, and governance planning.

Objectives of Indicators/Indicator Systems

Although there are a number of variables which determine the objectives of education indicator systems, several system developers have suggested that most jurisdictions share the following basic objectives (Darling-Hammond, L. & Ascher, C., 1991; Oakes, 1988):

- to provide reliable information on the progress and effectiveness of an education system;
- to contribute to informed dialogue about the present state and future of education;
- to assist in making judgments about the strengths and weaknesses of a system;
- to support decision making in the planning and policy development process; and
- to demonstrate accountability to the public.

It has also been suggested that the most important variables affecting the objectives of education indicators are:

- the level of aggregation for reporting the data (are the data needed to support decision making and policy development at the national, provincial, or local level?) (Halsey, 1988);
- the system's overall sophistication, particularly in describing the broader context in which schooling occurs (what information is currently collected or might be collected given resources available?);
- the complexity of the information that needs to be collected (are there methodological difficulties in collecting and using the information?); and
- whether the emphasis is on accountability and/or improving the system (how will the information be used?).

A final and key point is that objectives can evolve over time in response to changing conditions or as part of a deliberate strategy to implement a comprehensive system on an incremental basis.

Development of Indicator Systems

Scheerens (1991) has undertaken a review of the literature on the various approaches to conceptualizing educational indicator systems. He suggests three trends have occurred.

The first trend in the development of educational indicators was a transition from descriptive statistics, such as enrollments and graduation rates, to measuring performance of the education system, or more generally, a shift towards statistics of evaluative importance such as student achievement data (often referred to as evaluative or quality indicators or performance monitoring). Quality indicators are commonly associated with goals of education for a province, state or country and are often described as a systems approach to evaluation.

Scheerens (1991) describes the second trend in the development of indicator systems as a move toward more comprehensive indicator systems, first by adding output measures and context measures to the more traditional measurement of inputs and resources, and secondly by a growing interest in manipulative input factors and process-characteristics. He cites the example of the U.S. Department of Education National Centre for Statistics where, since 1982, outcome and context data as well as process aspects of the education system's functioning have been added to their descriptive statistics on the state of the system.

The third trend in conceptualizing indicator systems, according to Scheerens, is related to the second trend as far as the interest in process indicators is concerned but adds an interest in the measurement of data at more than one aggregation level (national, provincial, and school). He suggests the interest in process indicators and what happens in the learning continuum between system inputs and outputs naturally leads to an interest in what goes on in schools and even classrooms.

This move to a broader conceptual model for indicator development has gained a fair degree of support from a number of authors reviewing indicator systems. Smith (1988) states that

> to develop a set of indicators requires an image of a fully functioning system. Any education system at whatever level can be thought of as made up of three parts: inputs and resources, processes, and outcomes. All three are connected through relationships that are direct and indirect, unidirectional and reciprocal, and causal. (p. 488)

Odden (1990), too, suggests that an educational indicator system is far more than a time series of outcome measures, such as student achievement, postsecondary attendance rates, drop out rates, and lifetime earnings. He also concludes that an educational indicator system must provide information about core educational inputs, processes, and outcomes, as well as some sense of how these variables interact.

Similarly, Oakes (1989) underscores the utility of process indicators. She has written extensively in support of comprehensive educational indicator systems for assessing the effectiveness of schools at the state and federal levels, as well as at the international level. She counters some of the arguments that reviewers such as Murnane and Pauley (1988) make. Their arguments are taken from economic indicator systems that focus primarily on system outputs and focus on explaining trends in outcome indicator system data. In her rebuttal, Oakes argues that indicators of the schooling context are as necessary as outcome indicators. She suggests that policy makers need information about the resources, policies, organizational structures, and processes that characterize schools for a system of indicators to mirror the condition of education accurately or to be useful for making improvements. In this light, the benefits of context indicators far outweigh the risks of their inclusion.

A model adopted in Alberta for indicator development has been guided by these considerations. McEwen and Chow (1991) suggest that "to examine student outcomes in isolation, without taking into account the context and operation of schooling, denigrates a large body of research on the relationships among achievement and other variables, and may perpetuate poor pedagogical policies and practices" (p. 1). A strategy for indicator development in Alberta is proposed which calls for "multiple goals of education; multiple indicators of each goal - measured by multiple methods; multiple levels of analysis - student, class, school system, province, (and potentially) country, the world; and multiple participants - government, administrators, teachers, academics, parents" (p.23).

Further to that, McEwen and Chow suggest the key to successful implementation of an indicator system is to involve the partners in the process. They state that "an indicator system will succeed only if it is viewed as valuable and important . . . while each group of partners has its own agenda for reform and improvement, they can work together to take action on their particular area of responsibility" (p. 24).

Although there is growing support for the inclusion of more than outcome indicators in any system of educational indicators, questions have been raised about the place of process indicators. Guthrie (1990), in a review of educational evaluation issues for the OECD, summarizes the concerns raised about a narrow focus on outcome data in indicator system development by stating that "it is sometimes alleged that quantifiable outcome measures contribute to organizational goal displacement, encouraging concentration upon the trivial because it is measurable, and neglect of the meaningful because it is complicated" (p. 19). Scheerens (1991) makes this same observation about the danger of process indicators becoming ends or goals in themselves, thus leading to goal displacement in a new form. He concludes that "the only legitimate way to employ process indicators is to always link them to output indicators" (p. 374). Similarly, Oakes (1989) states that "contextual features are more useful when decision makers understand them as *enablers*, rather than as causes of student learning" (p. 195).

Scheerens (1991) also identifies measurement concerns with certain process characteristics such as school climate or educational leadership that are not readily quantifiable with objective measures. Scheerens, as well as Oakes (1989), conclude

that, while these measurement obstacles are considerable, reasonable proxy measures of process characteristics do exist.

Oakes provides examples of how one component of school and system climate, high expectations for students, could be measured. Proxy measures for high expectations might include graduation requirements, graduation rates, student enrollment in advanced courses, and system recognition of academic accomplishments. She concludes that collecting data about the best available proxies for key features of the system will provide valid and useful information about the school context.

The next question is how to determine these key features. How should context, process, and outcome indicators be selected for an educational indicator system?

Components of Educational Indicator Systems

Scheerens (1991) has proposed that research literature on school effectiveness can be used as a source to identify process variables. He reviews four types of school effectiveness research and uses this study as a basis to generate possible process indicators.

Scheerens notes that the first generation of school effectiveness research, which he calls research on (in)equality in education and school effects, drew some pessimistic conclusions as a result of the Coleman Report in 1966. The Coleman Report concluded that schools accounted for approximately ten percent of the variance in pupil achievement, after statistical adjustments had been made for the influence of background characteristics of pupils. Scheerens points out, however, that statistical measures of variance may be misleading in determining the educational importance of certain variables. He concludes that the significance of this research for educational indicator development is that resource input data as well as pupil background data can be included in indicator systems and may be most useful in adjusting raw output measures to allow for an unbiased interpretation of the effect of process characteristics on school functioning.

Scheerens identifies another type of school effectiveness research as research on educational production functions. This is the economic approach to school effectiveness and is concerned with the questions of which inputs lead to more output and what those outputs cost. This approach is similar to other types of school effectiveness research in that relationships between school characteristics and achievement are investigated, while adjusting for background characteristics of pupils (such as level of intelligence and socio-economic status). The difference lies in the selection of input indicators easily expressed in monetary terms, such as teacher salary, teacher-pupil ratio, and per pupil expenditure. Such research points to certain input variables like teacher experience and per pupil expenditure that could be considered for inclusion in indicator systems, but caution is advised in interpretation of their effects on output as educational expenditure, for example, has not been proven to be consistently related to achievement.

A third area reviewed by Scheerens is effective schools research. He claims that an important motive for this more recent wave of school effectiveness research is to refute the claims of the Coleman Report. What distinguishes this type of research from earlier school effectiveness studies is that school or process variables such as school organization and culture are examined. Scheeren's review of the literature identifies a number of factors consistently associated with pupil achievement. These include educational leadership, achievement oriented policy, orderly and safe climate, clear objectives, high expectations, monitoring/evaluation of pupils' progress, and continuity and consensus among teachers. He suggests that, while some of the effective school characteristics require intensive data collection and high inference measurement, others can be operationalized in terms of relatively uncomplicated scales or questionnaire items.

In research on instructional effectiveness, the fourth type identified by Scheerens, the distinguishing characteristic compared to the various types of school effectiveness studies described earlier is the fact that process characteristics of education are studied at the teacher or classroom level. Variables cited that have been repeatedly shown to be associated with achievement are effective learning time or time on task, structured or direct teaching, opportunity to learn or content covered, teacher attitudes and expectations, enhancing student motivation, and the support of the home.

Scheerens concludes that the development of a conceptual model of school effectiveness is of direct relevance to identifying prospective process indicators. He acknowledges that some conceptual and methodological questions have been raised about school effectiveness research, but these should serve as cautionary notes rather than deterrents when selecting specific process variables. Selection should be made on the basis of those that will be most useful within the educational context (national or local) for an indicator system.

While Scheerens' review focuses on European and American educational systems, Weiss (1988) furthers the debate in support of contextual and process indicators for providing an accurate reflection of what really goes on in Canadian schools. In an article entitled *Quality Education Indicators in Canada: What Will Stand on Guard For Thee?*, he provides a comparison of historical developments in education in the United States and Canada. The constitutional framework in Canada has given each of the provinces autonomous responsibility for education whereas the United States experience has been a greater federal presence with direct influence over education.

Such differences have implications for conceptualizing indicator systems. As there has been no formal centralized education system in Canada, recent attempts by the Council of Ministers of Education Canada to develop quality education indicators at the federal level are breaking new ground. However, historically, most of the educational indicator activities in Canada have been at the provincial level. Weiss suggests that the complexities of the educational systems in Canada may be such that it is difficult to fully understand and/or appreciate the situational nature of the enterprise. Because educational systems are complex, approaches which allow for greater detail about process variables can help to make sense of this complexity. He states that "contextually-oriented, rather than preordinate, approaches might have more potential

for understanding educational practice" (p.72). Weiss, like Scheerens, suggests effective schools research as a means to guide these contextually-oriented approaches and to further understanding of both context and outcome.

In summary, the development of indicator systems has been influenced by thinking and research about the education process. To date, no single model of that process has gained universal acceptance. However, a common theme running through existing models is an attempt to relate (1) contextual (2) process and (3) outcome information (Oakes, 1986, 1988 & 1989; Odden, 1990; Smith, 1988).

While linkages within such a framework may not always be clear, contextual and process information can provide important clues to policy makers about why we get the outcomes that we do and what we can do to make improvements. This information can also reveal changes that have followed from specific policy actions and school improvement efforts. These changes, of course, cannot be linked with certainty to their causes, but they do permit analysts to raise hypotheses for more detailed analysis and study. Efforts to further clarify and understand those linkages is one aspect of ongoing indicator-related research (Keeves, 1988; Odden, 1990). Power (1988) suggests that, as the linkages between indicators become clearer, we can hope for a better understanding of the operation of education systems and their linkages with other systems (e.g. labour market).

Summary

Much can be learned from the work of others. The various approaches to conceptualizing indicator systems discussed in the literature provide useful direction in conceptualizing, developing and implementing a system of indicators for monitoring education reform initiatives unique to Saskatchewan. Contextual and process indicators, included in a number of approaches to indicator development, can be a useful approach in Saskatchewan by providing valuable information for monitoring attainment of many of Saskatchewan's goals for education. In addition, both the move to conceptualizing indicator systems in relation to the latest school effectiveness research and the move to examining processes at the classroom level add to our understanding of indicators. A Saskatchewan framework for indicator development should be reflective of these approaches and understandings and should provide direction for schools and school divisions in the collection of information on school and classroom processes impacting on attainment of student and system goals.

The Saskatchewan Education Indicators Program

Recommendations within *Directions* including the adoption of the Goals of Education provided the blueprint for improvements within the Saskatchewan education system. The Saskatchewan Education Indicators Program provides the framework for collecting information that will tell us how we are progressing in the implementation of those improvements and in the attainment of those goals.

As a first step in the development of the Saskatchewan Education Indicators Program, adoption of a mission statement and guiding principles was viewed by the Education Indicators Advisory Committee as the most effective way to address concerns and issues raised by the education partners.

Mission Statement

In keeping with the spirit of the *Directions* Report and the *Evaluation in Education* Report, the Education Indicators Advisory Committee has adopted the following mission statement for a system of indicators of educational quality in Saskatchewan:

> The purpose of establishing a set of indicators is to collect relevant and appropriate data to support decision making, planning, and policy development at all levels of the education system and to demonstrate public accountability by providing information about the education system to the education community and the public at large.
>
> The indicators should promote the best possible learning environment for all students in Saskatchewan schools by providing information about the attainment of the Saskatchewan Goals of Education.

Guiding Principles

In keeping with this mission statement, the Education Indicators Advisory Committee also has recommended adoption of the following principles to guide and direct all activities related to the development of a set of education indicators. The Committee believes that an indicator system should:

- provide a broad range or set of relevant and appropriate indicators tied to the Goals of Education;
- assist in assessing and evaluating the strengths and weaknesses of the kindergarten to grade 12 education system;
- support decision making, planning, and policy development at all levels of the

education system; and

- contribute to informed dialogue about the education system.

The Committee also believes that Saskatchewan Education should:

- adhere to an established code of ethics in the collection and dissemination of information;
- establish a consultative process prior to implementation of a provincial indicator system; and
- develop an information infrastructure to foster understanding of an indicator system.

A Conceptual Framework For Indicators

A conceptual framework for indicator development and selection has been chosen which is grounded in Saskatchewan's Goals of Education and the vision for education outlined in *Directions*. Through the gathering and reporting of information on a regular basis, the framework supports a shared responsibility for education in the province, including a shared responsibility for accountability. It also provides for continuous update of the vision and priorities for the education system.

It is a framework that reflects the complexity of the education system and allows for ongoing modifications over time as changes occur within the system. It is a framework which is sensitive to the demographic, economic, and social trends influencing education in this province such as increased representation of Indian and Métis students in the school system, increasing incidence of child hunger, and the growing importance of lifelong learning in this age of rapid change. It is linked to the fundamental goals of accessibility, equity, relevance and accountability for the education system.

The mission statement adopted by the Committee for an indicator program states that, a system of indicators "should promote the best possible learning environment for all students in Saskatchewan schools by providing information about the attainment of the Saskatchewan Goals of Education."

As a framework for collecting information to monitor progress towards attainment of the Saskatchewan Goals of Education and the best possible learning environment for all students, the following three major goal clusters were chosen by the Committee: basic skills development, social skills development and personal skills development.

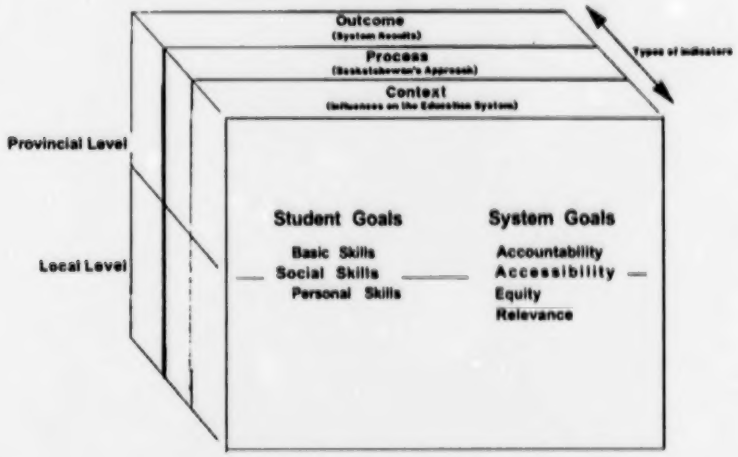
The Committee also chose to include in the mission statement, the following reference to the purpose for an indicator program: "to collect relevant and appropriate data to support decision making, planning, and policy development at all levels of education."

This implies a need to know not only how well the student is doing but also how well the system is doing.

The *Review of Directions in Practice* (1992) suggested that the *Directions* vision needs to be expanded to take into account the new circumstances of the 1990s. It is, therefore, deemed to be imperative to also collect information on the system as a whole to assess progress towards system goals of relevance, accessibility, equity and accountability.

A three-dimensional model has been developed to demonstrate the interrelatedness of indicator information at the provincial and local levels; information about the attainment of student goals and system goals; and information about what goes into an education system (context), what goes on in the system (process), and what results from the system (outcomes). This model is displayed in Figure 2.

Figure 2: A Framework For Indicator Development



The next section provides a more detailed description of the dimensions or categories included in this indicator framework.

Student Goals

The Saskatchewan Goals of Education (see Appendix A) establish a framework for working toward the child-centered vision for education coming from the *Directions* review process. There is recognition, too, that education is a shared responsibility between school, home, church, and the community and that all play roles in the educating of a child.

To assess progress toward the Goals of Education, three categories or clusters have been chosen as a way of organizing the goals for the purpose of data collection and reporting. Described below are the three student goal clusters under the headings of Basic Skills Development, Social Skills Development, and Personal Skills Development.

Basic Skills Development: This category includes the "basic skills" and "lifelong learning" components of Saskatchewan's Goals of Education. Within a complex, changing society, basic skills include not only the acquisition of essential knowledge in various subject areas but also the development of those skills, attitudes, and values students need to become flexible learners who can solve problems, create ideas, understand technology and communicate clearly.

Social Skills Development: This category includes "understanding and relating to others", "career and consumer decisions", and "membership in society" sections of Saskatchewan's Goals of Education. Students will develop the knowledge, skills, attitudes and values necessary for them to contribute to society through their work, community participation and family life.

Personal Skills Development: This category includes the "self-concept development", "positive life style", "spiritual development", and "growing with change" sections of Saskatchewan's Goals of Education. Students will develop the knowledge, skills, attitudes and values necessary for them to achieve a positive sense of self, a healthy way of life, spiritual understanding and adaptability to change.

System Goals

This section outlines the four system goals of relevance, accessibility, equity and accountability. In order to know how we are doing, we need to collect data to assess attainment of each of those goals.

Relevance: Education programs and services provide students with the knowledge, skills, attitudes and values necessary to prepare them for the future.

Accessibility: The education system should strive to provide all students in Saskatchewan schools access to a comprehensive range of programs and services that meet their individual needs.

Equity: The education system should strive for equality of opportunity and equal distribution of benefits for all students within the context of individual aptitudes, abilities and interests. In Saskatchewan at this time, particular emphasis has been placed on meeting the needs of the following groups: girls and young women, Indian and Métis students, students with mental and/or physical disabilities, and northern students.

Accountability: The education system is responsible to its various publics for the decisions that are made within it. It displays leadership, promotes planned change and workscooperatively.

Types of Indicators

For each of the components defined above, there are three types of information required: information about the social and economic context in which education occurs, information about how we do things in this province, and information about results or outcomes.

Context - includes external factors affecting the education system that cannot easily be altered such as student demographics and societal trends.

Process - includes policies developed to guide the education system and the resources available to the system, - factors which are, to a greater extent, within the control of the education system itself. It also includes those activities undertaken within the education system that are intended to lead to the achievement of the desired education outcomes. Such activities might include Core Curriculum and the Core Curriculum Development Model, support programs for meeting special needs, extracurricular activities, inservice programs; and the collaborative planning process.

Outcomes - refers to the results achieved by the education system and the relationship of these to its objectives. Included in this type of indicators one might find learning assessment results, program enrollments, credit attainment, secondary participation rates, graduation rates, and indicators of school satisfaction.

Local and Provincial Involvement

To support tracking or monitoring the results of policy changes, program initiatives and resource commitments in the attainment of the Goals of Education, information must be collected at both the provincial and local levels. The three-dimensional model as pictured in Figure 2 provides a conceptual framework for the selection and development of indicators at both the provincial and local school division levels. Some indicators may be more appropriate at the provincial level, while others will have more utility at the local level. The framework implies an assessment of how well our students are being prepared in the context of the goals and needs of the province as well as the goals and needs at the school division level. Key indicators are suggested in figures 3 and 4 which can express, in measurable terms, the attainment of the Goals of Education.

To support such a framework, information may be easily attainable for some areas while difficulty might be encountered for others. For example, measuring attainment of all the Goals of Education in quantitative terms will present a methodological challenge.

Data Collection and Analysis

As McEwen and Chow (1990) have pointed out, implementation of this framework for indicator development requires attention to multiple goals, multiple methods of data collection and analysis, and multiple groups of participants from whom data can be

collected. To ensure that the information collected is accurate and reliable, support is needed from schools and school divisions.

A considerable amount of information is currently collected by schools, school divisions, and Saskatchewan Education on an ongoing basis (e.g. financial, student course enrollment at the grade 10, 11, and 12 levels, facilities) through the use of various instruments (e.g. regular submission forms, Directors of Education Survey).

A number of assessment activities currently underway as part of the follow-up to recommendations contained in the final report from the Minister's Advisory Committee on Evaluation and Monitoring will also provide important information to support the indicators program. For example, the Curriculum Evaluation Program has been developed to assess the effectiveness of Core Curriculum changes.

Additional methods and instruments will be developed which reflect the broad range of information required. These could include interviews, observation strategies, and attitudinal surveys. While Saskatchewan Education will support processing, analysis, and reporting of this data to a large degree, such a data collection activity also requires commitment at the school and school division level.

The interrelatedness of the indicators and the systematic analysis of information collected will assist policy makers in making informed decisions at the various levels. Reporting back at both the provincial and local level ensures that the education system is accountable to a broader audience of educators, policy makers, and the public.

Selection of Indicators

Figures 3 and 4 on the following pages present suggestions for the types of indicators that could be used for each of the framework components. The overlap between contextual and process information for outcome indicators of Basic Skills Development, Social Skills Development, and Personal Skills Development demonstrates the complexity of the relationships impacting on educational performance.

Certain indicators listed may be useful at the provincial level as they provide a description of economic, social, and demographic trends for the province as a whole. The framework and many of the examples listed in Figures 3 and 4 may also be used at the school level to provide additional information that will contribute to understanding circumstances specific to a school division, such as the capacity to fund special education programs or the drop-out rate. Others may be judged to have utility at the local level only. These include incidence of vandalism, the need for a school nutrition program, and student participation in school-sponsored extra-curricular activities.

Indicators suggested for use at the provincial level are listed in Appendix B: *Provincial Level Indicator System.* Appendix C goes on to indicate the availability of the data, stage of development, mechanism for collection, as well as timelines.

Figure 3: Saskatchewan Education Indicators Program - Student Goals

	Basic Skills	Social Skills	Personal Skills
Context	• Description of economic trends affecting students' educational needs, e.g., globalization, technological advances, increasing demands for highly skilled and adaptive labour force, importance of developing human resources, importance of life-long learning. • Description of social trends affecting students' educational needs, e.g., changing family structure, greater mobility, greater diversity within society, increased participation by women in the labour force. • Description of demographic trends, e.g., aging population, migration, etc. • Description of Directions' vision of education and Saskatchewan's Goals of Education. • Description of characteristics of teaching and administrative staff, e.g., age, education, experience, accreditation. • Information on teacher supply and demand.		
Process	• Overview of Core Curriculum implementation, including supports provided, e.g. pilots, teacher inservice. • Support for instruction, e.g. *Instructional Approaches: A Framework for Professional Practice.* • Description of curriculum evaluation process.		
Outcomes	• Results of benchmark, authentic assessments of student achievement in all required areas of study conducted regularly by school divisions. • Results of curriculum evaluations, e.g., extent to which students demonstrate Common Essential Learnings and meet foundational objectives related to basic skills development. • Enrolment patterns by course of study. • Numbers of students repeating grades or classes. • Acceptance rates of Saskatchewan students by postsecondary educational institutions. • Rate of scholarship applications; numbers of award recipients. • Results of provincial examinations and accredited teachers' marks. • Successes in science fairs, music festivals, debates, academic contests, etc. (division level). • Results of Statistics Canada surveys on literacy and numeracy among adults. • Number and use of computers within schools.	• Results of benchmark, authentic assessments of special social skills among students conducted regularly by school divisions. • Results of curriculum evaluations, e.g., extent to which students demonstrate the Common Essential Learnings and meet those foundational objectives related to social skills development. • Students' activities immediately upon leaving school: employment, upgrading, postsecondary education, business. • Student participation in career preparation and work experience programs. • Student participation in school-sponsored extra-curricular activities. • Student participation in exchange programs and travel opportunities.	• Results of benchmark, authentic assessments of special personal skills among students conducted regularly by school divisions. • Results of curriculum evaluations, e.g., extent to which students demonstrate Common Essential Learnings and meet foundational objectives related to personal skills development. • Physical activity and fitness measures. • Overview of lifestyle choices made by students and graduates. • Student participation in optional health curriculum units: sex education and AIDS education. • Suspensions and expulsions from school. • Utilization of school counselling services and social services.

Figure 4: Saskatchewan Education Indicators Program - System Goals

	Relevance	Accessibility	Equity	Accountability
Context	• Rapid technological change. • Increased skill and education requirements. • Overview of Saskatchewan's curriculum development model. • Description of the Adaptive Dimension of the Core Curriculum, referencing Saskatchewan Education's document The Adaptive Dimension in Core Curriculum (1992).	• Public demand for access • Overview of characteristics of Saskatchewan's school divisions, e.g. size (geographic, enrolment), rural and urban, enrolment trends, types of schools.	Increased emphasis regarding equity for all groups within society, e.g. Canadian Charter of Rights and Freedoms, Saskatchewan Human Rights Code. Demographic characteristics of Saskatchewan's population and student enrolment, e.g. gender, Aboriginal persons, persons with disabilities. • Legislation governing Special Education within Saskatchewan. • Overview of recommendations of Northern Education Task Force. • Provincial overview of proportion of women, Aboriginal persons and persons with disabilities in teaching and administrative positions. • Provincial funding for special education programs.	• Increased public demand/expectation for accountability within the education system. • Description of structure and governance of Saskatchewan's education system; identification of major educational organizations at the provincial level. • Description of collaborative/co-operative decision making process used within Saskatchewan's education system. • Funding, e.g. operating grants to school boards, local revenue, Education Development Fund, expenditure per pupil, educational expenditure as a percentage of the provincial budget. • Planning processes used at the division level; description of how goals and objectives are developed; who is involved in school division planning process. • Allocation of resources at local level, e.g. salaries, programs, materials and equipment, transportation. • School division policies on student, program and curriculum evaluation. • School division policies on parental and community involvement in schools.
Process	• Description of Saskatchewan Education's Alternative Education Policy. • Description of Resource-Based Learning Policy. • Overview of role of curriculum advisory committees. • Inservice provided on the Adaptive Dimension. • Description of implementation of the Adaptive Dimension within school divisions. • Provincial and local initiatives to promote student retention. • Description of Alternative Education programs and schools within school divisions.	• Overview of distance education initiatives, e.g. Saskatchewan Correspondence School, Saskatchewan Communications Network. • Initiatives at provincial level regarding integrated delivery of school-based services; support services provided for children at local level. • Overview of Community Schools program.	• Description of provincial policies related to specific groups, e.g. Gender Equity Policy, Indian and Métis Education Policy from Kindergarten to Grade 12, Special Education Policy. • Information on school division policies related to gender equity, Indian and Métis students, special education. • Overview of curriculum initiatives related to Indian and Métis education, e.g. integration of Indian and Métis content into curriculum, development of Native Studies and Indian language programs; role of Indian and Métis Education Advisory Committee. • Overview of provincial supports for special education. • Overview of Saskatchewan Education's curriculum initiatives related to gender equity.	• Overview of Saskatchewan School Improvement Program (SSIP), Saskatchewan Educational Leadership Development Program (SELU) and STF's Administrative Leadership Development Program. • Description of school improvement and leadership development programs at school division level. • Overview of student, program and curriculum evaluation initiatives as well as reference to education indicators project.

Figure 4 (cont'd): Saskatchewan Education Indicators Program - System Goals

	Relevance	Accessibility	Equity	Accountability
Process	• Description of implementation of Resource-Based Learning within school division		• Information on school division gender equity initiatives related to curriculum, instruction, resource materials, student development, school environment and community interaction. • Description of Indian and Métis education initiatives within school divisions. • Description of special education programs within school divisions.	• Overview of provincial initiatives to promote parental and community involvement in schools • Description of parental and community involvement in local schools.
Outcomes	• Student retention data, participation rate, graduation rate, grade 8-12 retention rate, change in rates over time. • Results of provincial and local student retention initiatives. • Number of credits attained.	• Correspondence School enrolment; number of courses offered; location of students. • Number of courses offered by SCN; location of those courses. • Enrolment in French Immersion, Core French, Indian and Heritage Language programs and francophone schools; change in enrolment over time. Number of community schools; results of evaluations of community schools.	• Postsecondary education enrolment by gender, Aboriginal persons, persons with disabilities. • Labour force participation by gender, Aboriginal persons, persons with disabilities. • Enrolment in NORTEP and SUNTEP; number of NORTEP and SUNTEP graduates employed in education system. • Overview of results of education equity plans for Indian and Métis students and gender equity plans. • Course enrolment and achievement at secondary level by gender. • Enrolment and graduation data for northern and Indian and Métis students. • Overview of participation of students with disabilities in regular classrooms.	• Provincial aggregate of results of school improvement and leadership development programs. • Student, parent and community attitudes toward and satisfaction with the education system. • Number of parental/community volunteers; effects of parental/community involvement in the schools.

Ethical Considerations

Any indicator development must take place with due attention being paid to ethical guidelines. All activities including provincial learning assessments will be conducted in a manner consistent with ethics guidelines established for research with human subjects. Specifically, the Saskatchewan Education Indicators Program will adhere to the ethical principles expressed in the Social Sciences and Humanities Research Council of Canada's *Guide for Research Grants* (1988) and *Part B of Principles for Fair Student Assessment Practices for Education in Canada (1992)*, a code of ethics developed by a joint advisory committee, and endorsed by various organizations. The above-mentioned codes include principles related to:

- the rights of the individual,
- informed consent,
- deception,
- risk and benefit,
- privacy,
- confidentiality and anonymity,
- research on captive and dependent populations,
- research on children,
- acquisition and use of cultural properties,
- using appropriate assessment techniques,
- procedures for assessment scoring,
- procedures for interpreting assessment results, and
- reporting assessment results.

Plans for Implementation

While a considerable amount of development work has yet to be done through feasibility studies and methodology development, a great deal of information is currently collected by schools, school divisions, and Saskatchewan Education on an ongoing basis. Various mechanisms are in place for reporting this information to students, parents and the general public. The Saskatchewan Education Annual Report, as well as an annual compendium of secondary level statistics for school and school division use, are examples of information sources produced by Saskatchewan Education. Schools and school divisions have their own data collection mechanisms and report back to their publics in a variety of ways.

The Saskatchewan Education Indicator Program provides a framework for reporting that information in a coherent and consistent manner at both the provincial and local levels. Implementation of the Program is intended to be incremental in nature with continued development to occur over time.

Provincial Level

Recommendation # *4* in the *Progress Report* of the Education Indicators Advisory Committee included:

Production of an annual publication on education indicators by Saskatchewan Education which:

- **presents demographic and fiscal factors that establish the context for education, including the school-age population in the province and the ways in which it is changing, the number of school divisions and their average size, the socio-demographic characteristics of the province's population, and the level of fiscal resources available to education;**
- **is based on the Saskatchewan model as established in this report;**
- **will, over time, contain additional information as the implementation and assessment of Core Curriculum progresses and as the database is improved;**
- **will describe basic program policies and practices at the provincial level; and**
- **will identify trends and make appropriate comparisons beyond specific school or school division levels.**

Such a publication will position us well to monitor trends over time and will support informed decision making in the planning and delivery of education in this province. The first annual report, scheduled for release in the fall of 1993, will include the following key outcome indicators:

- **the level of student achievement in academic subjects;**
- **the extent students are developing personal and social skills;**
- **the rate of participation of students in the education system; and**
- **attitudes of students, recent graduates, and the public to the education system.**

Local Level

Recommendation # *6* in the *Progress Report* stated that:

Saskatchewan Education should be available for consultative support for indicator development and use at the local level.

As a result of that recommendation Saskatchewan Education will implement a number of pilot projects that involve school jurisdictions in the development of local indicator

programs. These pilot projects will use the framework as established by the provincial committee to guide discussions within school divisions that lead to the development of a set of indicators appropriate to their own needs. It will also provide a window of opportunity to pilot certain indicators that have utility at the provincial level. Essentially, the purposes for developing local indicator pilot projects include the following:

- to assess the utility of indicator information collected at various levels of the system;
- to assess the level of difficulty in collecting and interpreting data;
- to build understanding and support for education indicator programs at the provincial and local school division levels; and
- to focus attention on the need for school divisions to develop mechanisms that demonstrate accountability to their public.

An important objective to be attained is the development of a program that supports monitoring at both the provincial and local level. There is a need for the province to be accountable to the general public and tax payers. As well, school divisions must be accountable to their publics.

Communications Strategy

The 1992 document, *Into the Classroom: A Review of Directions in Practice*, states that:

> The educational organizations should develop strategies to communicate the results of monitoring and evaluation at all levels to parents and the wider community. An annual report could be used to highlight progress and to reinforce the goals which are guiding educational policies and programs in schools. (p. 7)

A communications strategy is being developed to carry out that recommendation.

Establishing Local Level Pilot Projects

In order to address pertinent questions concerning indicator development and implementation completely, the pilot sites selected should reflect a range of school divisions in the province. Consideration should be given to the size, location (e.g. urban/rural, north/south), student demographics (e.g. Indian and M&is) and the level of technical support that can be provided by the school division. Limitations will be placed on selection in the first year due to the restricted number of pilot sites that can be supported.

Participation in this project is entirely voluntary. Some funding and technical support will be provided by the department to advance the project. Initial meetings with Saskatchewan Education officials and school divisions began in the fall of 1992 with limited pilots being implemented in the 1992-93 school year and an expanded number of sites in the following year.

It is expected that school division indicator programs will be developed through collaborative processes involving Department consultants and school division personnel. Saskatchewan Education foresees a nine phase process spanning program development, implementation and reporting.

The pilot projects will proceed through the following phases:

Phase One — **Setting the Stage**

This phase will provide information to boards of education and central office staff concerning indicator development work. Building an understanding of education indicators, preliminary planning for development, and implementation of an indicator program will be the major focus of discussions in this phase.

Phase Two — **Developing a Team**

This phase involves developing a committee of representatives that have direct interest in education. At a minimum, this committee should include senior administrators, in-school administrators, board members, teachers, parents, and public interest and cultural groups. (i.e. business and Indian and Métis groups)

Phase Three — **Laying the Groundwork**

This phase will provide the basis for future discussions regarding choice of specific indicators. It is essential to identify the vision for education in the school division. Discussion of division goals and objectives will focus attention on key aspects of the system that need to be considered for indicator development. A background paper that supports indicator development should be started during this phase.

Phase Four — **Developing the Key Indicators**

This phase provides for selection of key indicators that align with the important goals identified in phase three. The development team will initiate discussion concerning the types of data required, selection of instruments, data collection, analysis and reporting.

Phase Five — **Establishing Support**

This phase provides for an opportunity to broaden the consultation process. Discussions are held with school staffs and other constituent groups to foster understanding and gain support. Input into indicator development is collected and fed into the process.

Phase Six — **Developing the Instruments**

This phase involves technical support in developing appropriate instruments to collect indicator information.

Phase Seven — **Collecting and Analyzing Data**

This phase includes the actual administration of the assessment including data collection and analysis. This puts phase four planning into action.

Phase Eight — **Interpreting Data**

This phase relies on the development team and other experts to review the information and interpret the results. Plans for reporting the information will be finalized during this stage.

Phase Nine — **Reporting Data**

The report should include a description of the goals and the key indicators used to assess the effectiveness in meeting these goals. Recommendations and plans for follow-up should be included.

Identifying Roles and Responsibilities

As pilot projects are established, it is essential to identify key expectations for school division officials, Saskatchewan Education and the Provincial Indicators Advisory Committee. These expectations are rooted in the principles of cooperation and collaboration.

School Division Roles and Responsibilities are:

- to accept a minimum two-year commitment to the pilot project (1992-1994)
- to work in collaboration with Saskatchewan Education consultants
- to pilot test indicators identified for provincial system use
- to utilize consultative processes to establish the indicator program (stakeholder committee, input from broader audiences)
- to provide school division consultative support
- to ensure commitment from board of education and senior administration
- to provide clerical and technological support for the project
- to develop a report to be released to selected audiences

Saskatchewan Education Roles and Responsibilities are:

- to provide access to Saskatchewan Education data base
- to provide technical and consultative support for indicator development
- to provide funding to support pilot projects
- to provide technological support for data collection and analysis
- to work collaboratively with school division officials
- to serve as liaison between school division indicator development and provincial indicator development

Education Indicators Advisory Committee Roles and Responsibilities are:

- to monitor the pilot project
- to provide advice to Saskatchewan Education on local indicator development and its relationship to the provincial indicator program

Timelines For Local Pilots

Timelines for the local level pilot projects have been established in Figure 5 on the following page.

Figure 5: Timelines For Local Pilots

Targets	Activities	Responsibilities	Timelines
Year One 1992-93			
establish limited pilots	• establish 3-4 local pilots (limited pilot year)	Saskatchewan Education School Divisions	June 1992
develop local indicators program and test provincial indicators	• establishing an advisory team • inservice/training • laying the groundwork • developing the key indicators • establishing support • developing the instruments	Saskatchewan Education School Divisions	September 1992 ongoing September/October 1992 January 1993 March 1993 June 1993
evaluation of pilot process		Saskatchewan Education	Fall 1993
report publicly at the provincial level	• produce initial report on provincial indicators • monitoring pilots	Saskatchewan Education and Education Indicators Advisory Committee	Fall 1993
Year Two 1993-94			
2nd year of limited pilot group			
develop data management system	• networking among pilots • continuing to develop instruments • collecting and analyzing data • interpreting data	School Divisions Saskatchewan Education support School Divisions Saskatchewan Education support School Divisions Saskatchewan Education support Education Indictors Advisory Committee	ongoing November 1993 ongoing February 1994
report to the public	• develop School Division report	School Divisions	
establish expanded pilot	• develop and implement 10-l 2 local pilots (full pilot year) • activities same as year one for limited pilot group	Saskatchewan Education School Divisions	1993-94 1993-94
report publicity at the provincial level	• produce second annual report on provincial indicators	Saskatchewan Education Education Indicators Advisory Committee	Fall 1994
evaluation of pilot process		Saskatchewan Education	Fall 1994

Figure 5 (cont'd): Timelines For Local Pilots

Year Three 1994-95			
limited pilot group	• full implementation		
full pilot	• same as Year two for limited pilot group		
evaluation of pilot process		Saskatchewan Education	Fall 1995
report publicly at the provincial level	• produce third annual report on provincial indicators	Saskatchewan Education Education Indicators Advisory Committee	Fall 1995
Year Four 1995-96			
	• full implementation	School Divisions	
	• interface as required	Saskatchewan Education	
evaluation of pilot process		Saskatchewan Education	Fall 1996
report publicly at the provincial level	• produce fourth annual report on provincial indicators	Saskatchewan Education Indicators Advisory Committee	Fall 1996

Conclusion

In light of recent reforms in education and the growing attention given to education as an essential means of maintaining our quality of life, it is increasingly important to establish mechanisms that provide school officials with insights into the functioning of the education system.

Information gathered and aggregated at each level of the system or key indicators that monitor and assess how well the system is doing relative to established goals and objectives have the potential to assist in planning, policy development and decision making. Implementation of such systems that assist in making informed decisions will serve to improve delivery of education services for the children of Saskatchewan.

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Appendix A: Goals of Education for Saskatchewan

Goals of education in Saskatchewan should direct efforts to develop the potential of all students in the province. Education should affirm the worth of each individual and lay the foundation for learning throughout life.

Students benefit from exposure to learning in a variety of situations. Attainment of the goals is a venture the school shares with the student, the home, the church, and the community. Although the degree of school responsibility will vary from community to community, the school has some responsibility for each goal.

A body of knowledge and a range of skills and attitudes are necessary to function in a changing world. It is intended, then, that education will enable Saskatchewan students to do the following to the best of their abilities:

Basic Skills

1. **Read, write, and compute**
2. **Acquire information and meaning through observing, listening, reading, and experiencing**
3. **Process information through intellectual and technological means**
4. **Solve problems by applying basic principles and processes of the sciences, arts and humanities**
5. **Communicate ideas through written and spoken language, mathematical symbols, and aesthetic expression**

Life-long Learning

1. **Seek and value learning experiences**
2. **Act as self-reliant learners**
3. **Base actions on the knowledge that it is necessary to learn throughout life**

Understanding and Relating to Others

1. **Act on the belief that each individual is worthwhile**
2. **Base actions on the recognition that people differ in their values, behaviours, and life styles**
3. **Interact and feel comfortable with others who are different in race, religion, status, or personal attributes**
4. **Develop a sense of responsibility toward others.**

Self Concept Development

1. Perceive themselves in a positive way
2. Appreciate their own abilities and limitations
3. Set and work toward personal goals
4. Assess praise and criticism realistically
5. Present themselves with confidence

Positive Life Style

1. Practice appropriate personal hygiene, engage in sufficient physical activity, and maintain a nutritionally balanced diet
2. Avoid harmful use of alcohol and other drugs
3. Cultivate interests that may be the basis for personal development and leisure pursuits
4. Recognize the importance of productive activity
5. Display initiative and pursue tasks diligently
6. Maintain a safe and healthful community
7. Respect and seek to enhance the environment
8. Appreciate beauty in its many natural and constructed forms
9. Express themselves creatively

Spiritual Development

1. Seek an understanding of the purpose and worth of human existence
2. Develop a knowledge of God
3. Respect family, religion, and culture in a pluralistic society

Career and Consumer Decisions

1. Develop an awareness of career opportunities
2. Develop interests and abilities in relation to vocational expectations
3. Adapt to shifts in employment patterns and technology
4. Make informed consumer decisions

Membership in Society

1. Assume responsibility for their own actions
2. Work with others to achieve individual and group goals
3. Participate in the democratic processes of government and perform the duties of citizenship

4. Respect the rights and property of others
5. Act with honesty, integrity, compassion, and fairness
6. Develop a sense of national pride and acknowledge the need for international understanding
7. Work toward greater social justice
8. Assume responsibility for dependent persons in a manner consistent with their needs
9. Respect law and authority
10. Exercise the right of dissent responsibly

Growing With Change

1. Work toward immediate and long-term goals
2. Base actions on an understanding that change is a natural process in society
3. Select workable alternatives in response to changing conditions
4. Develop confidence in making decisions that involve risk

Appendix B: Saskatchewan Education Indicators Program

	STUDENT GOALS			SYSTEM GOALS			
Types of Indicators	**3asic Skills**	**Social Skills**	**Personal Skills**	**Relevance**	**Accessibility**	**Equity**	**Accountability**
CONTEXT (Influences)	• Demographic Changes . student . educators • Economic Conditions and Trends • Social Conditions and Trends • Pupil/Teacher Ratio • Characteristics of Teaching/Administrative Staff • Vision and Goals of Education			• Increased diversification of school population • Changing education requirements • Rapid technological change • Rapidly increasing skill and education requirements • Global competition	• Public demand for accessibility • Changing population trends urban/rural/north	• Public demands for equity • Canadian Charter • Saskatchewan Human Rights	. Public demands for accountability . Structure of Education System Roles • Funding of Education
PROCESS (Initiatives)	• Core Curriculum RAS, CEL's development and implementation . Instruction and Evaluation Approaches • Teacher Inservice			• Inservice of Adaptive Dimension • Locally determined options • Stay-in-school initiatives • Core Curriculum and change to instruction • Resource Eased Learning	• Northern Education initiatives • Distance Education initiative6 • Community schools • Integrated School-Based Services Project	• Provincial equity policies • Overview of provincial support for special education • Provincial Indian and Métis initiatives • Provincial support for special education • Provincial gender equity initiatives	Overview • Collaborative practices . SSIP • Education units • Student, program and curriculum evaluation • Programs that promote parental and community involvement • Number of schools involved in school improvement initiatives
OUTCOMES (Results)	• Student Achievement grade 5, 8 and 11 reading, writing, listening, speaking and mathematics • Student Achievement required areas of study . Attitudes towards RAS • Provincial examinations • Student marks grades 10, 11 and 12	• Assessment of student social skill development • Participation in social development activities	• Assessment of student personal skill development • Assessment of student lifestyle choices • Participation in personal development activities	• Participation rates . completion . retention • Credit attained in high school • Post-secondary flows • Perception of current students, graduates, employers, general public	• Courses available in schools • Enrolments . Correspondence School . French language enrolments ▸ Heritage language enrolments	Enrolments • NORTEP/SUNTEP • participation of students with disabilities • Course enrolments non-traditional and achievement levels	. Attitudes of the public • Attitudes of graduates • Attitudes of students

Appendix C: Provincial Indicator Data Availability

	Available	Development	Mechanism	Timeline
CONTEXTUAL				
Demographic: Students	yes	K-8 tracking	Sept. Stats Report - Students Record System	Fall - annually Semester
Teachers	yes	none required	Teacher records	Fall-annually
Trends affecting education	yes	none required	Government documents Fed/Prov	annually
Governance Structures	yes	none required	Government documents	annually
Financial Resources	yes	none required	Financial Administration documents	annually
Vision	yes	Renewed vision	EPPAC/Directions	1992
Policies	yes	ongoing	various policies e.g. education equity	annually
PROCESS				
Curriculum Development Model	yes	none required	Curriculum and Instruction Directions	annually
Core Curriculum	yes	ongoing	Curriculum documents • Required Areas . C.E.L.'s • Adaptive Dimension	annually
Support programs meeting special needs • Special Education	yes	ongoing	special education records and documents	annually
• French Immersion	yes	ongoing	OMLO records and documents	annually
• Community Schools	yes	ongoing	Indian & Métis Education Branch	annually
• Education Equity	yes	ongoing	Indian & Métis Ed. Branch Policy and Planning Branch Special Education Branch	annually
• Distance Education	yes	ongoing	Correspondence School	annually

	Available	Development	Mechanism	Timeline
PROCESS (cont'd)				
• Guidance and Career Counselling	partial	survey	Directors of Education Survey, Career Resources Section	annually
• Stay-in-school	partial	survey	Student Retention Council, Special Ed.	annually
Inservice Program • leadership training	partial	survey	S.E.L.U., Assessment and Evaluation Branch	annually
• curriculum implementation	partial	survey	Curriculum Evaluation	annually
• instructional change	partial	survey	Curriculum Evaluation	annually
• evaluation and monitoring	partial	survey	Curriculum Evaluation	annually
• school improvement	partial	survey	S.E.L.U., Assessment and Evaluation Branch, Survey	annually
Collaborative Planning and Shared Decision Making	partial	survey	Directors of Education Survey	annually
OUTCOMES				
Assessment Results Basis Skills Personal Skills Social Skills	 none none none	Curriculum Evaluation Assessment Instruments	Curriculum Evaluation Assessment Instruments	periodically by collection, by subject on cycle
Program Enrolments	partial	program enrolments elementary	10-12 Secondary Students records	annually
Credit Attainments	yes	ongoing	Student Records	annually
Secondary participation rates	yes	ongoing	Student Records	annually
Gradustion Rates	yes	ongoing	Student Records	annually
Transition to postsecondary	partial	ongoing	Postsecondary Records (e.g. The Statistics Book of the University of Saskatchewan	annually
Satisfaction with school	no	survey	sample K-12	periodic
Attitudes towards school	no	survey	sample K-12	periodic
Attitudes towards subjects	no	survey	Curriculum Evaluation	periodic collection by subject on cycle